

Cont'd  
E1

wherein asperities of a surface of said crystalline semiconductor thin film are formed by said laser light, and said asperities are flattened by said second heat treatment.

sub G1  
E2

17. (Amended) A method of fabricating a semiconductor device comprising:
- adding an element for facilitating crystallization of an amorphous semiconductor thin film to a part or an entire region of the amorphous semiconductor thin film;
  - carrying out a first heat treatment to transform the part or the entire region of the amorphous semiconductor thin film into a crystalline semiconductor thin film;
  - irradiating a laser light to said crystalline semiconductor thin film; and
  - carrying out a second heat treatment for the crystalline semiconductor thin film in a reducing atmosphere including a halogen element after the irradiation of said laser light,
- wherein asperities of a surface of said crystalline semiconductor thin film are formed by said laser light, and said asperities are flattened by said second heat treatment.

sub G1  
E3

20. (Amended) A method of fabricating a semiconductor device comprising:
- adding an element for facilitating crystallization of an amorphous semiconductor thin film to a part or an entire region of the amorphous semiconductor thin film;
  - carrying out a first heat treatment to transform the part or the entire region of the amorphous semiconductor thin film into a crystalline semiconductor thin film;
  - carrying out a second heat treatment of irradiating the crystalline semiconductor thin film with ultraviolet light or infrared light; and
  - carrying out a third heat treatment for the crystalline semiconductor thin film at 900 to 1200 °C in a reducing atmosphere after the second heat treatment.

sub G1  
E4

22. (Amended) A method of fabricating a semiconductor device comprising:
- adding an element for facilitating crystallization of an amorphous semiconductor thin film to a part or an entire region of the amorphous semiconductor thin film;

cont'd  
E4

carrying out a first heat treatment to transform the part or the entire region of the amorphous semiconductor thin film into a crystalline semiconductor thin film;  
carrying out a second heat treatment of irradiating the crystalline semiconductor thin film with ultraviolet light or infrared light; and  
carrying out a third heat treatment for the crystalline semiconductor thin film in a reducing atmosphere including a halogen element after the second heat treatment.

28. (Amended) A method of fabricating a semiconductor device comprising:  
adding an element for facilitating crystallization of an amorphous semiconductor thin film to at least a portion of the amorphous semiconductor thin film;  
carrying out a first heat treatment to transform the at least a portion of the amorphous semiconductor thin film into a crystalline semiconductor thin film; and  
irradiating a laser light to said crystalline semiconductor thin film; and  
carrying out a second heat treatment for the crystalline semiconductor thin film at 900 to 1200 °C in an atmosphere containing hydrogen therein after the irradiation of said laser light,  
wherein asperities of a surface of said crystalline semiconductor thin film are formed by said laser light, and said asperities are flattened by said second heat treatment.

30. (Amended) A method of fabricating a semiconductor device comprising:  
forming a semiconductor film comprising silicon over a substrate;  
crystallizing said semiconductor film;  
irradiating a laser light to the crystallized semiconductor film; and  
subsequently heating the crystallized semiconductor film provided with an oxide formed over a surface thereof in an atmosphere which reduces said oxide formed over said surface,  
wherein asperities of a surface of the crystallized semiconductor film are formed by said laser light, and said asperities are flattened by said heating.

31. (Amended) A method of fabricating a semiconductor device comprising:  
forming a semiconductor film comprising silicon over a substrate;

crystallizing said semiconductor film;

irradiating a laser light to the crystallized semiconductor film; and

subsequently heating the crystallized semiconductor film provided with an oxide formed over a surface thereof in an atmosphere which reduces said oxide formed over said surface,

wherein said atmosphere comprises hydrogen, and

wherein asperities of a surface of the crystallized semiconductor film are formed by said laser light, and said asperities are flattened by said heating.

32. (Amended) A method of fabricating a semiconductor device comprising:  
forming a semiconductor film comprising silicon over a substrate;  
irradiating a laser light to said semiconductor film to crystallize said semiconductor film;

etching a surface of the crystallized semiconductor film after the irradiation of said laser light to remove an oxide therefrom;

heating the crystallized semiconductor film in a reducing atmosphere after said etching step to form a flattened surface of the crystallized semiconductor film.

33. (Amended) A method of fabricating a semiconductor device comprising:  
forming a semiconductor film comprising silicon over a substrate;  
irradiating a laser light to said semiconductor film to crystallize said semiconductor film;

treating a surface of the crystallized semiconductor film with hydrofluoric acid after the irradiation of said laser light to remove an oxide therefrom;

heating the crystallized semiconductor film in a reducing atmosphere after said treating step to form a flattened surface of the crystallized semiconductor film.

34. (Amended) A method of fabricating a semiconductor device comprising:  
forming a semiconductor film comprising silicon over a substrate;  
crystallizing said semiconductor film;  
irradiating a laser light to the crystallized semiconductor film;

Pub G1  
Contd

subsequently heating the crystallized semiconductor film provided with an oxide formed over a surface thereof at a temperature of 900 to 1200 °C in an atmosphere which reduces said oxide formed over said surface,

wherein asperities of a surface of the crystallized semiconductor film are formed by said laser light, and said asperities are flattened by said heating.

Contd  
E6

35. (Amended) A method of fabricating a semiconductor device comprising:  
forming a semiconductor film comprising silicon over a substrate;  
crystallizing said semiconductor film;  
irradiating a laser light to the crystallized semiconductor film;  
subsequently heating the crystallized semiconductor film provided with an oxide formed over a surface thereof at a temperature of 900 to 1200 °C in an atmosphere which reduces said oxide formed over said surface,

wherein said atmosphere comprises hydrogen, and

wherein asperities of a surface of the crystallized semiconductor film are formed by said laser light, and said asperities are flattened by said heating.